Thermal transport is an increasingly important experimental approach to probe extraordinary physics in strongly correlated quantum materials. In recent years, many unexpected magnetothermal transport signatures have been observed including large thermal Hall effects in a few important insulators (e.g., $SrTiO_3$ and La_2CuO_4) and the apparent oscillation of thermal conductivity in α-$RuCl_3$, creating puzzles in the community. In this talk I will show that the key to these puzzles lies on the phonons and how they respond to magnetic field efficiently. I will also discuss possible mechanisms underlying these experimental observations and picture future directions towards probing exotic phases of matter through analyzing thermal transport in a more revealing manner.